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1. An actuator for a window lift mechanism, said actuator comprising:

an output shaft for driving said mechanism;

an output gear coupled to said output shaft; and

a plurality of motors coupled to said output gear, said plurality of motors configured to simultaneously drive said output gear and said output shaft.

REMARKS

Responsive to the communication mailed August 23, 2002, Applicants provide the following remarks in an effort to more particularly point out the invention. Reconsideration and reexamination are respectfully requested. A marked up version of the claims showing the changes made is attached.

Election of Species III

The Examiner indicated that claims 14 – 16 and 33 – 40 fail to read on species III because FIG. 7 of Applicants' specification does not show a clutch or a dual rack assembly. Applicants respectfully submit that claims 33 – 40 read on species III and therefore should be considered by the Examiner. FIG. 7 of Applicants' specification shows two worm gear drive sets. One of the worm gear sets may act like a clutch as described with reference to FIG. 1. For instance, with reference to the worm gear drive set of FIG. 1, Applicants point out that "[t]he worm gear 7 coupled to the motor 2 thus acts like a clutch in the system 1." Page 9, lines 15 – 16 of Applicants' specification (emphasis added). Also, see claim 38 which points out that the "gear

train comprises a second worm gear coupled to said output gear." Accordingly, Applicants request the Examiner consider claims 33 – 40 as part of the Elected species III.

35 U.S.C. §102 Rejection

Claims 1 – 3 have been rejected under 35 USC 102(b) as being anticipated by U.S. Patent No. 4,215,592 to Calvert. Applicants' claim 1, as amended, requires "a plurality of motors coupled to said output gear, said plurality of motors configured to simultaneously drive said output gear and said output shaft." Since the plurality of motors is configured to simultaneously drive the output gear and output shaft, they can be designed with complimentary characteristics to result in improved driving performance compared to driving with only one motor at a time. "For example, the motors may be configured so that the inherent torque ripple of the motors is out of phase with one another. This may reduce or cancel actuator vibration and hum inherent in a single motor." Page 8, lines 19 – 21 of Applicants' specification. In addition, when one of the motors fails, a soft failure mode results that, in essence, notifies a user that service is necessary. For instance, the remaining motor or motors "will provide basic function at a reduced performance level until service can be performed." Page 9, lines 5 – 6 of Applicants' specification.

In contrast to that required by claim 1, Calvert discloses a pair of "redundant" motors 32, 46 configured to separately drive a shaft 22. Calvert explains redundancy by indicating "[i]t will, of course, be appreciated that in many instances it is highly desirable to provide for redundancy, where back-up is always available. Such instances are frequently found in the aerospace industry

where a failure of a motor or system can severely jeopardize an otherwise successful mission." Column 1, lines 60 – 65.

Because Calvert is concerned with "redundancy," the second motor 46 "is of design and construction similar to the motor 32." Column 4, lines 9 -10. Calvert explains that the system operates with one motor on and the other off in order to provide the desired redundancy. For instance, motor 32 is fixed to the bearing housing 28 by a bracket 34 and is configured to rotate therewith. Column 4, lines 51 – 53. The other motor 46 is rigidly affixed to the base 14. Column 4, lines 57. "Consequently, with the motor 46 in a quiescent state of energization, energization of the motor 32 serves to drive the gear worm 42 causing the worm to advance about the periphery of the worm gear 24. Such advancement of the gear worm 24 serves to impart angular displacement to the bearing housing 28, about the shaft." Column 5, lines 3 – 9. On the other hand, "[w]ith the motor 32 in a quiescent state of energization it is possible to impart rotation to the bearing housing 28 simply by energizing the motor 46 for driving the gear worm 60, via the spur gears 54 and 56." Column 5, lines 12 – 15. Calvert then concludes that "the system 10 provides a practical solution to the problem of achieving motor redundancy, for a drive system ..." Column 5, lines 23 – 24.

In summary, claim 1 requires that the plurality of motors is "configured to simultaneously drive said output gear and said output shaft." Calvert does not disclose, teach, nor suggest such a configuration. Rather, Calvert teaches that each motor 32, 36 may separately drive an output shaft to provide a redundant motor arrangement.

Claims 2 – 3 depend from claim 1 and as such incorporate all the limitations of claim 1. Accordingly, Applicants respectfully submit that claims 2 – 3 are also in condition for allowance for the reasons above adduced relative to claim 1.

35 U.S.C. §103(a) Rejection

The Examiner also rejected claims 8 – 10 under 35 USC 103(a) as being unpatentable over Calvert in view of White et al (U.S. Patent No. 4,608,820). In making this rejection, the Examiner argues that the claimed invention differs from Calvert only in the use of a planetary gear and sun gear and White shows such a gear in a two motor drive system. Applicants respectfully traverse this rejection.

As adduced relative to claim 1, Calvert does not disclose, teach, or suggest that the plurality of motors is "configured to simultaneously drive said output gear and said output shaft." Rather, Calvert teaches redundant motors to provide backup in case a failure of one motor. Similarly, White teaches redundant motors 46, 48 (Fig. 1) and 46'', 48'' (FIG. 4) where one motor typically operates and the other motor serves as backup. For instance, the actuator 24 of FIG. 1 in White includes the two motors 46, 48 to position the meter valve 22. The "valve 22 will only be positioned by one of the stepper motors 46 and 48 ..." Column 3, lines 42 – 43. Emphasis added.

FIG. 4 of White illustrates redundant motors 46'', 48'' which are "another variation" (Column 6, line 56) of the motors that can be utilized in an actuator 24 to serve the redundancy purpose as previously described with reference to FIG. 1 of White. As such, White explains operation of the actuator 24 with the 'motor 48'' operating and motor 46'' at rest' (Column 6, lines 67 – 68) and then conversely 'with motor 46'' operating and motor 48'' at rest." Column 7,

line 4. It is clear both motors 46'', 48'' are not "configured to simultaneously drive" an output gear and output shaft as required by claim 1, and hence claims 8 - 10.

Accordingly, Applicants respectfully submit that in light of the foregoing remarks, all of the presently pending claims are now in a condition for allowance. Reexamination and reconsideration are respectfully requested. In the event the Examiner deems personal contact desirable in disposition of this application, the Examiner is respectfully requested to call the undersigned attorney at (603) 668-6560.

Respectfully submitted,

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Marked-Up Version of Claims

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1. (Amended) An actuator for a window lift mechanism, said actuator comprising:

an output shaft for driving said mechanism;

an output gear coupled to said output shaft; and

a plurality of motors coupled to said output gear, said plurality of motors configured to simultaneously drive [for driving] said output gear and said output shaft.